SpaceLogger-RS TextLogger

User Manual

For the latest information and support please go to our website www.spacelogger.com

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Document revision summary

Issue	Date	Description
1	Oct 2007	Original document
2	Nov 2008	Operating conditions updated

Our products are in continuous development and therefore specifications may be subject to change and design improvements may be implemented without prior notice. Please visit our web site www.r-p-r.co.uk for the most up to date information on our products.

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1 INTRODUCTION

SpaceLogger-RS TextLogger receives data from RS232 compatible data sources and is designed for simple data logging, supporting a range of ASCII text logging applications.

Data is stored onto an MMC mobile card. MMC mobile cards with up to 2 GByte capacity are compatible with SpaceLogger-RS. Higher capacity cards are not compatible. SpaceLogger-RS will also accept other compatible data storage cards, such as full size MMC and some SD cards.

The MMC mobile card can be removed from the logger and inserted into a card reader connected to a PC. Stored data files are accessed in the same way as files on the computer's other disk drives. The text files may be read and manipulated in any standard Office applications (e.g. Notepad or MS Excel).

The logger requires a 7 - 30 volt DC supply which can be provided by an AC/DC mains adaptor or suitable battery.

2 QUICK START: EASY STEPS TO DATA LOGGING

❶.....Connect RS232 inputs	see section 4.3
❷.....Select baud rate	see section 4.4
❸.....Power on	see section 4.6
❹.....Insert MMC mobile card	see section 5.1
❺.....Start recording data	see section 5.2
.....	
❻.....Stop recording data	see section 5.2
❼.....Remove card and transfer to PC to view and analyse data	see section 5.2

3 EXAMPLE APPLICATION

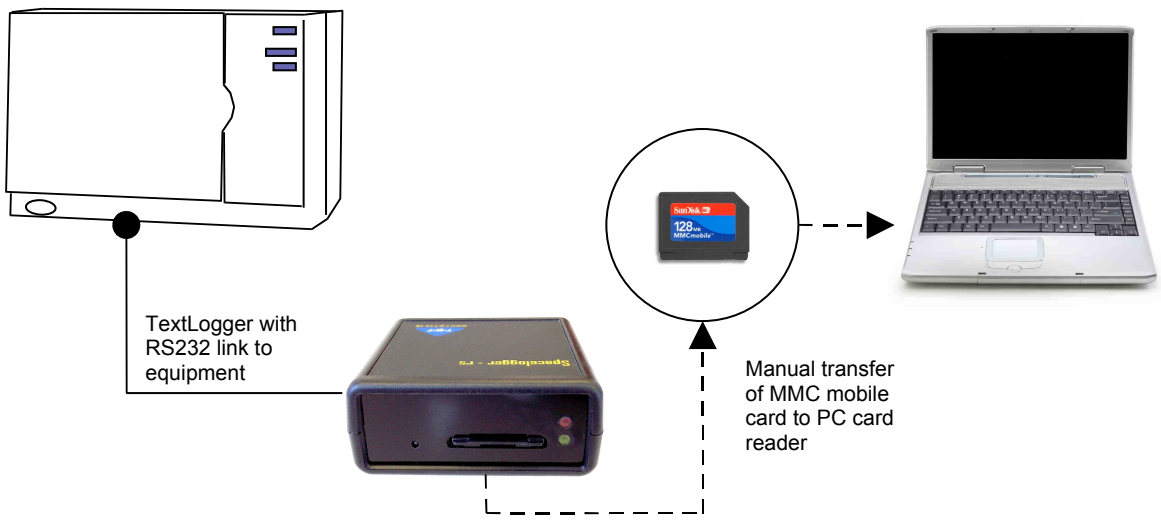

Figure 1

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4 CONNECTING

4.1 Terminal Strip Arrangement

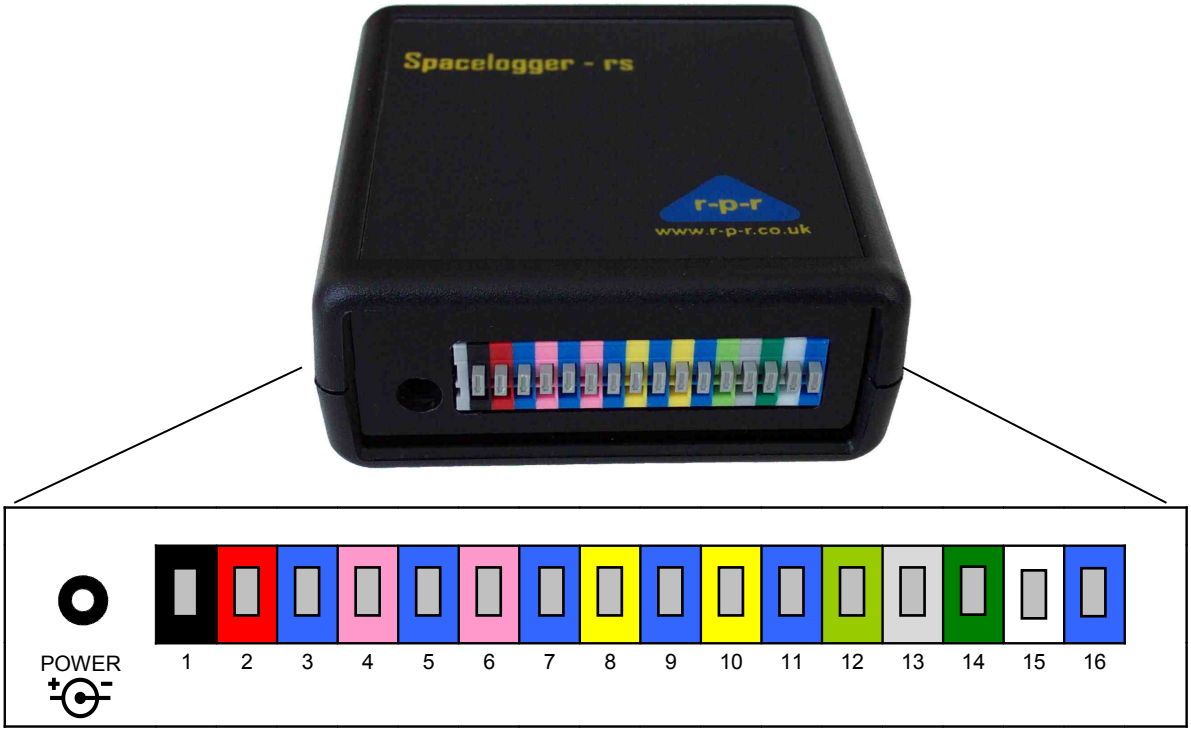

Figure 2

4.2 Generic Terminal Allocations

SpaceLogger-RS Terminal	Signal description		Use
1	Power GND		Power
2	Supply +V (+7 to 30V dc)		
3	Analogue GND 1		Reserved for future options
4	Analogue input 1		
5	Analogue GND 2		
6	Analogue input 2		
7	Digital I/O GND 1		
8	Digital I/O input 1		
9	Digital I/O GND 2		
10	2400 baud rate selection	Digital I/O input 2	Baud rate
11	2400 baud rate selection	GND	
12	RS232 Tx 2		Reserved for future options
13	RS232 Rx 2		
14	RS232 Tx 2		
15	RS232 input 1		RS232 signal input from data source
16	RS232 GND 1		

Table 1

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4.3 RS232 Interface

RS232 connection to the data source should be made as per Table 1. This table should be read in conjunction with Figure 2. Wires should be prepared as per section 4.5.

4.4 Baud Rate Selection

The default baud rate is 9600 bits per second. If an input baud rate of 2400 is required, terminals 10 (yellow) and 11 (blue) should be linked as per Figure 3 below.

Terminal linking for 2400 baud rate

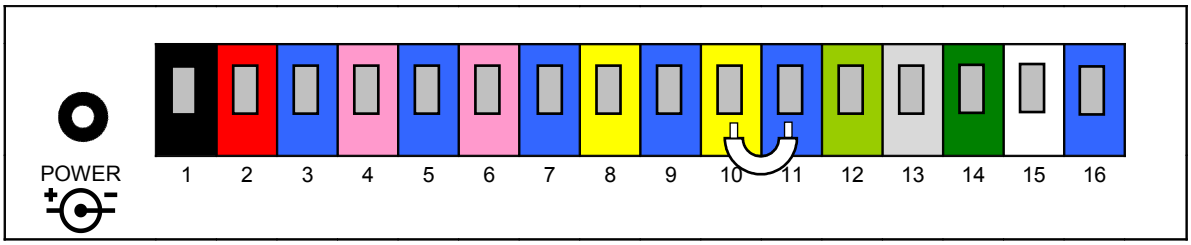

Figure 3

4.5 Cable Preparation

The logger uses screwless terminals and to ease connection, wires should be prepared as per Figure 4. It is important that the stripped ends be accurately 9 to 10mm long to ensure good connections in the terminals.

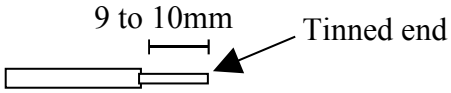

Figure 4

Either solid or stranded cable is acceptable, in the range 0.32 to 0.65 mm diameter (AWG 28 to 22) with gauge 24 being ideal.

Using a small flat headed screw-driver fully depress the grey plunger for the required terminal and insert the wire as far as it will go, into the hole below the plunger. Release the grey plunger and the wire is held captive by the connector. A gentle tug on the wire will confirm that it is held firmly.

If the wire in question is multi-strand, ensure that all strands are inserted in the terminal hole.

Please note that interconnection of all components should be completed prior to applying power.

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4.6 Power Supply

When the logger is powered using a 7 to 30 V DC supply the central pin on the power socket should be to GND.

Alternatively, power may be supplied via terminals 1 (black) and 2 (red) on the screwless terminal connector strip, as per Table 1. Note that if power is supplied via the supply socket then terminal 2 (red) is automatically disconnected.

Warning: All GNDs are common and so damage to the logger may result if they are connected to different voltages.

5 LOGGING

Figure 5

5.1 MMC mobile Card

When the MMC mobile card is inserted correctly into the SpaceLogger-RS (with power supplied), the unit should 'Beep' once and the red LED blink as the card initialises. At this stage, the SpaceLogger-RS's internal buffer is cleared and is ready to start receiving new data from the connected equipment.

The green LED will then switch on indicating that the unit is 'Ready to Record Data'. The green LED will remain on while the unit is in this state.

The MMC mobile card is designed to fit easily into the card slot one way only. Do not bend the card or force it into the slot.

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5.2 Data Transfer

Received data is stored temporarily in a buffer (1024 bytes). Data is transferred from the buffer to the MMC mobile card in 512 byte packages. If no data has been received from the data source for a set time period (approximately 4 seconds) then any remaining data in the buffer is written to the MMC mobile card. The red LED blinks each time data is written to the card.

To stop recording data, the small button to the left of the card slot on the front of the SpaceLogger-RS should be depressed. There will be an audio signal to indicate that the button has been pressed. This action will also purge any data in the buffer to the MMC mobile card so the card is ready to be removed from the SpaceLogger-RS. The green LED will automatically switch off to indicate that the unit is no longer enabled to record further data.

To recommence data logging the power must be cycled or a card re-inserted in order to re-initialise the card. The green LED will again indicate the unit as 'Ready to Record Data'.

To avoid losing data or corrupting the card, never remove the card or disconnect the power supply when the red LED is flashing or blinking.

5.3 Data Storage

SpaceLogger-RS creates a folder DATA on the MMC mobile card. Data is written to a file in the folder entitled LOGFILE1.TXT. All subsequent data logging will be to this same file with the new data appended to the file, rather than overwriting the existing data.

To ensure logged data can be easily read with Microsoft notepad, when any end of line is detected by the processor, it is stored as a <CR><LF> combination.

Where, <CR> is the ASCII carriage return character with a value of 13
<LF> is the ASCII line feed character with a value of 10

Also, un-printable characters with an ASCII value less than 10 are converted to a space character <SP>.

Should the MMC mobile card be removed from the SpaceLogger-RS or reach its data capacity while a data source is still connected, the buffer will fill over time. When the buffer is full and unable to write to the MMC mobile card, the SpaceLogger-RS will emit an audio warning signal, indicating that data has been lost. Note that it is not possible to recover data in the buffer in this situation because the buffer will be cleared when a new card is inserted into the SpaceLogger-RS.

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6 SPACELOGGER-RS TEXTLOGGER SPECIFICATION

6.1 PHYSICAL

Dimensions:	Width: 67 mm Depth: 67 mm Height: 28 mm (excluding optional rubber feet)
Weight:	0.075 kg
Enclosure material:	GP ABS (UL94-HB) plastic and acrylic

6.2 ENVIRONMENTAL

Operating Temperature Range:	-25 ºC to +70 ºC
Storage Temperature Range:	-40 ºC to +70 ºC
Enclosure protection:	IP203

6.3 POWER

Power requirement:	7 to 30 Vdc
Current at 12Vdc:	10 mA typical
Supply input protection:	Polarity reversal protected and internal fuse – 500 mA slo-blo® (Littelfuse type 0454500 or equivalent)
Connection:	1.3 mm centre pin DC connector, or screwless terminals (0.32 to 0.64 mm diameter conductors)

6.4 I/O CAPABILITY

Transmission standard:	RS232 serial input
Transmission speed:	9600 Baud (default) 2400 Baud
Wire acceptance:	0.32 to 0.65 mm diameter (AWG 28 to 22)

6.5 DATA STORAGE

Data Storage Card:	Removable MMC mobile
Data Capacity:	2 GByte (max)
File System:	FAT16 or FAT32 with 8.3 file names Sector size 512 Bytes

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6.6 AUDIO/VISUAL INDICATORS

LED Indicators:	Green: Ready to record data Red: Writing data to MMC mobile card
Audio Bleeper:	Two tone signal on correct card insertion Continuous tone when buffer full Single tone when data purge button depressed

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APPENDICES

A1 Guarantee

System components are warranted for a period of twelve (12) months from the original date of purchase, against defective materials and workmanship. In the event that warranty service is required, please contact Richard Paul Russell Ltd.

This warranty is only valid if, when warranty service is required, a full description of the fault is provided and presented with the original invoice, and the serial number(s) on the component has not been defaced.

Richard Paul Russell Ltd's liability is limited to items of its own manufacture, and it does not accept liability for any loss resulting from the operation or interpretation of the results from this equipment.

This warranty covers none of the following:

- Periodic check ups, maintenance and repair or replacement of parts due to normal wear and tear.
- Cost relating to transport, removal, or installation of the component.
- Misuse, including failure to use the component for its normal purpose or incorrect installation.
- Damage caused by Lightning, Water, Fire, Acts of God, War, Public Disturbances, incorrect supply voltage or any other cause beyond the control of Richard Paul Russell Ltd.
- Units which have been repaired or units altered by a party other than Richard Paul Russell Ltd's employees or agents without prior written consent from Richard Paul Russell Ltd.

In no event shall Richard Paul Russell Ltd be liable under any circumstances for any direct, indirect or consequential damages, any financial loss or any lost data contained in any product (including any returned product), regardless of the cause of loss. Richard Paul Russell Ltd products are not warranted to operate without failure. Richard Paul Russell Ltd's products must not be used in life support systems or other application where failure could threaten injury or life.

The Customers statutory rights are not affected by this warranty. Unless there is national legislation to the contrary, the rights under this warranty are the customer's sole rights and Richard Paul Russell Ltd shall not be liable for indirect or consequential loss or damage to any other related equipment or material.

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A2 Electromagnetic Conformity

EC DECLARATION OF CONFORMITY ACCORDING TO COUNCIL DIRECTIVE 89/336/EEC

We, Richard Paul Russell Limited of New Harbour Building
Bath Road
Lymington
Hampshire SO41 3SE
United Kingdom

Declare under our sole responsibility that the product:

SpaceLogger-RS

Manufactured by: Richard Paul Russell Limited

to which this declaration relates, is in conformity with the protection requirements of Council Directive 89/336/EEC on the approximation of the laws relating to electromagnetic compatibility.

This Declaration of Conformity is based upon compliance of the product with the following harmonised standards:

Emissions EN 61326:1997 inc A1/A2/A3:2003
EN 60945:1997
EN 61000-3-2:2000
EN 61000-3-3:1995 inc A1:2001

Immunity EN 61326:1997 inc A1/A2/A3:2003 Annex A (except for fast burst transients)

Signed by: R.P.Russell

Richard Paul Russell – Director

Date of Issue: 26 October 2007

Place of Issue Richard Paul Russell Limited
New Harbour Building, Bath Road
Lymington SO41 3SE, UK

CE

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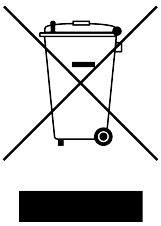
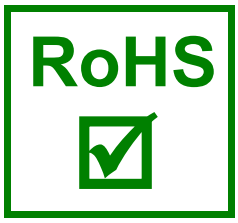
SpaceLogger-RS has been tested for compliance with FCC standards FCC/CFR 47: Part 15:2004. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
The user is cautioned that changes or modifications not approved by the responsible party could void the user's authority to operate the equipment, in line with the FCC guidelines.

A3 WEEE (Waste, Electrical and Electronic Equipment) Statement



The WEEE directive places an obligation on all EU-based manufacturers and importers to take-back electronic products at the end of their useful life. Richard Paul Russell Ltd accepts its responsibility to finance the cost of treatment and recovery of redundant WEEE in accordance with the specific WEEE recycling requirements.
This symbol on the product or on its packaging indicates that the product must NOT be disposed of with normal household waste. Instead, it is the end user's responsibility to dispose of their waste equipment by arranging to return it to a designated collection point for the recycling of WEEE. By separating and recycling waste equipment at the time of disposal, natural resources will be conserved and it will be ensured that the equipment is recycled in a manner that protects human health and the environment. For more information about where you can send your waste equipment for recycling, please contact your local council office or visit our website www.r-p-r.co.uk.

A4 RoHS Statement
(The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2006)



SpaceLogger-RS has been designed to comply with EU Directive 2002/95/EC on RoHS regulations that came into force on 1 July 2006. The unit is assembled from compliant components.
RoHS is often referred to as the lead-free directive, but it restricts the use of the following six substances:

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent chromium (Cr6+)
- Polybrominated biphenyls (PBB)
- Polybrominated diphenyl ether (PBDE)

PBB and PBDE are flame retardants used in some plastics.

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